WORLD CHRONICLE

UNITED NATIONS

FOR IMMEDIATE RELEASE

DURATION: 28' 00" TRANSCRIPT AS BROADCAST

PROGRAMME: "WORLD CHRONICLE"

GUEST: Barry Bloom, Chairman
Advisory Committee on Tropical Diseases
World Health Organization (WHO)

JOURNALISTS: Claude Robinson, Inter Press Service
Ted Morello, Christian Science Monitor
Ian Steele, Press Foundation of Asia

MODERATOR: Michael Littlejohns

SYNOPSIS

Tropical Diseases in the Third World

Barry Bloom, Chairman of the World Health Organization's Advisory Committee on Tropical Diseases and Professor of Microbiology and Immunology at Albert Einstein College of Medicine, discusses the need to provide more funds for medical research and treatment of tropical diseases which mainly afflict Third World nations. Professor Bloom points out that rich nations have the drugs, insecticides and technical know-how to control many tropical diseases, the challenge is to make full use of these resources.

"WORLD CHRONICLE" is produced by the Information Products Division, Department of Public Information, United Nations, New York, N.Y. 10017, USA.

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Programme No. 391 Recorded on 10 May 1990

VOICE From United Nations Headquarters in New York, this is World Chronicle, an unedited interview programme about major global issues. Here now to introduce our guest is the host of today's World Chronicle.

LITTLEJOHNS: I'm Michael Littlejohns and this is WORLD CHRONICLE.

Tropical diseases, which mainly afflict Third World nations, cause about 50% of the world's illness but receive only about three percent of the medical research funds. The pharmaceutical industry of the industrial world has been reluctant to bridge the gap because it doubts that new treatments will be profitable. Thus, the reality is that millions of people are sick because they're poor, and poorer because they are sick. How to help developing countries break this vicious cycle? Perhaps more important, can rich nations really insulate themselves from tropical diseases?

Our guest today, Barry Bloom of the United States, is Chairman of the World Health Organization's Advisory Committee on Tropical Diseases. He is also a member of the U.S. National Academy of Sciences and Professor of Microbiology and Immunology at Albert Einstein College of Medicine. Prof. Bloom will be interviewed here at United Nations Headquarters in New York by: Claude Robinson of Inter Press Service; Ted Morello of the Christian Science Monitor; and Ian Steele of the Press Foundation of Asia.

For some background information, here's a report from our correspondent, Steve Whitehouse.

WHITEHOUSE: Malaria, guinea worm, river blindness, these are among the most common tropical diseases that afflict about 500 million people; that is, one person in ten on earth. Most of these diseases are spread by insects. Mosquitoes, for example, are carriers of malaria. In its most dangerous form, malaria causes brain and lung complications. The World Health Organization estimates that about 27 million people are infected with malaria, and from one to two million people die from it each year.

Black flies are another scourge. They pass on parasites which cause river blindness. There are 17 million cases of river blindness in 34 countries, mostly in Africa. 326,000 people have lost their sight.

Millions of people suffer from guinea worms. Once ingested through infected drinking water, guinea worms live for twelve months in the living tissue of the human body. They then exit through the skin, agonizing for the victims.

Fighting tropical diseases is extremely difficult. The parasites, and the insects that carry them, are moving targets. They often develop resistance to drugs and control measures. Nonetheless, according to WHO, we do have the insecticides, drugs, and technical know-how to control many tropical diseases. The challenge is implementation.

Cost is not the only factor. There's only a limited scientific infrastructure for evaluating new drugs and vaccines relevant to Third World diseases. There's little potential for profits, so the pharmaceutical industry is not interested.

Well trained health workers in the field are a key to the fight against tropical diseases. They have immediate access to villagers, to educate them and influence their way of living. But there are few incentives for people to become field health workers.

Tropical diseases occur mostly in the Third World. But no country, however advanced, can claim complete immunity. Travellers and tourists returning from tropical countries bring back to the United States, for example, about 1,000 cases of malaria a year.

The world has become a global village. It has the resources to control many tropical diseases. What we need now are imagination and commitment.

LITTLEJOHNS: Prof. Bloom, how much blame should be attached to the drug industry for this state of affairs?

BLOOM: The drug industry I think is not to be blamed because the drug industry represents the people who are responsible and investing in them, and that's a larger number of people than the executives in the pharmaceutical industry, and their responsibility is to bring back profits for the people who invest. The question is how does one do that when the vast majority of people that we're concerned about here are not in a position really to provide such profit. I think that there is a responsibility and where that has been exercised it's a very exciting enterprise. I think that for the first time in history there's a drug that prevents the blindness that you saw in the clip a minute ago. A single pill is preventive and curative. That drug is too expensive for the Sub-Saharan African countries and the pharmaceutical manufacturer has now made that available to the world community, through WHO, and through the governments to put that drug into the hands of people who most need it.

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LITTLEJOHNS: Who is this manufacturer, Prof. Bloom?

BLOOM: In this case it's the drug company called Merck & Co. and the drug is called ivermectin. Merck will, on the human use of that drug, lose a certain amount of money. On the other hand it has made a precedent, it is very exciting, but let me just caution that even though the drug is provided free of charge to this programme it costs about $5-$6 per pill to get that drug into the hands of the people who most need it so, as in the case of vaccines, the cost of the vaccine or the drug is one of the more minor components in getting appropriate treatment and prevention into the hands of people in developing countries.

LITTLEJOHNS: Is this whole problem of tropical diseases something that could be resolved if you throw enough money at it?

BLOOM: To an extent we have drugs and means to control to a much greater extent than we can at the moment many of the tropical diseases. We have the ability to vaccinate kids against the major killers of children in this world for a very, very small price.

LITTLEJOHNS: But these are not tropical diseases.

BLOOM: Many of them are occurring in tropical diseases that have been eradicated in the First World, for example poliomyelitis, tetanus -- 800,000 children in the world die of tetanus. We take it for granted that every kid here gets a tetanus shot and it's not a problem. It's a very big problem that can be provided simply with means, money, infrastructure development, vehicles, gasoline and a plan. The second level is there are things for which we do not have appropriate controls and that requires another kind of investment and that's a longer

term investment. That's an investment in research and it's the responsibility I believe of WHO to push on both of those fronts to get what we have available to the most people and to get new tools for where we have the greatest problems.

ROBINSON: Prof. Bloom, let's go back to the first part of your last comment, namely we have now an ability and the information, the vaccines and so on, to deliver some answers to the problems that we have, why is this not being done?

BLOOM: I think the exciting part is that in some cases it is being done and where it has been done the results are spectacular and dramatic. In 1974 five percent of the children in this world got the six childhood vaccines -- measles, polio, DPT. The current figure is somewhat over 60% largely because of the expanded programme of immunization of the World Health Organization with the help and assistance of UNICEF. That saved 22 million children's lives and the cost of that per life saved is basically on the order of $10 a kid. That's a very inexpensive, cost effective programme that has worked. In this continent, in the Americas, there were last year fewer than 200 cases of paralytic polio. What that tells me is that it can be done. We can vaccinate every kid in the world.

ROBINSON: I'm not disputing it but by your own figures you say that you're getting up to 60% that means 40% are outside of the system at the moment, are we going to just leave those 40% out there?

BLOOM: I think that two points. The first is every year there's a new cohort of babies so that vaccines are nothing that once they work you stop them and can go on to other

things. Every new cohort of babies has to have a new round of vaccines so that there's an ongoing cost and investment. The second is there are countries, particularly sub-Saharan Africa, where fewer than 30% of the babies have vaccines. We know what those areas are. The costs to do that in dollars and in infrastructure development and in human resources are enormous and we in the developed countries I believe are going to have to provide those resources. Let me give an example of an enormous cost. We contemplate the cost of the vaccine or the truck and the gasoline. What about the cost to a mother or a family that makes a living in the fields that has to give up a day to walk six hours to a health clinic to have her kids vaccinated? That cost proportionally is far greater than the cost that we would pay for the vaccine or even the trucks, the cold chain: the freezers and the refrigeration.

MORELLO: Mr. Bloom, the question of the worldwide spread of so-called tropical diseases into non-tropical areas, or at least in developed country areas, has there been a correlation noted between the increase in travel, tourist travel for example, business travel, as well as migration for various reasons, for reasons of war, for reasons of national disaster which carry a disease from one place to another, the correlation between that increase in travel and the spread outside the endemic area of any given disease?

BLOOM: In many cases we're fortunate. Many of the tropical diseases have exquisite requirements for specialized insect or snail vectors and once we clear the snails out of many of the rivers in the United States or have over the previous 80 years of this century, gotten rid of certain kinds of mosquitoes -- malaria has been largely eradicated and controlled in this country -- and so even if there are imported cases of malaria, and in the United States that's about 1,000 cases a year, it's

unlikely to spread because the insect vector is not there. On the other hand, there are other diseases, major diseases, one of which turns out to be tuberculosis, that does spread from individuals infected to communities and families and one of the tragedies here is that it is spread particularly in patients that have AIDS and so AIDS is bringing in, in addition to its own tragedy, the potential for spreading this infection that we thought we had eradicated largely in this country.

MORELLO: On the question of the insect vector being absent what are the prospects of it being established?

BLOOM: I think it's a very good question and what we've learned I think, only to our own surprise, is that insects are very clever and in this game there is no vaccine that can be counted upon to work forever. There is no pesticide or drug that is guaranteed because these organisms are being selected for survival. A bug that dies is a bug that doesn't reproduce and it's a dead end in evolution so that while we know that malaria parasites are resistant to chloroquine and to the common and inexpensive drugs and that mosquitoes are resistant to DDT there may be new ways to genetically adapt to insects that are in the United States that do not ordinarily carry tropical parasites but there's no in principle reason why mutation could not occur such that malaria could be established in a local mosquito and that is something to be concerned about and that's why one needs constant vigilance and research.

STEELE: Prof. Bloom, I wonder if we could talk about priorities for a moment? It's my understanding that there are a number of people at WHO who are concerned that the search for an AIDS vaccine is overshadowing other priorities, other problems, perhaps tropical diseases among them. Is that a widely held view?

BLOOM: I think there is a widely held view that research on AIDS and the emphasis on AIDS may have compromised the activities and efforts in other areas. At the scientific level I would like to assure you that it is not my view, either in the United States at the National Institutes of Health or in the World Health Organization, have I seen any evidence of that. Quite the contrary. As I mentioned for example before, tuberculosis is a major problem that spreads in communities as a result of patients getting overwhelming infections with AIDS and the Global Programme for AIDS has been enormously supportive of the Tuberculosis Unit and to put those two things together and break down the barriers between very different bacterial and viral diseases. So my sense is, if anything, there has been support for ongoing research from the AIDS programme as it impinges on their problem.

LITTLEJOHNS: The programme is WORLD CHRONICLE. Our guest is Barry Bloom, Chairman of the World Health Organization's Advisory Committee on Tropical Diseases.

STEELE: Prof. Bloom, coming back to AIDS, we've seen the reference to poverty and where the diseases strike, we've the reference to the profit motive, is AIDS getting the attention primarily because it's a rich person's disease or because wealthy people are affected by it? If AIDS was not present in the United States, if it was not present in Europe, would we see the same attention focused on it in search for a cure?

BLOOM: I'm sad to say that I think you're correct, we would not. I think the major threat from AIDS is that it is here and it is one of the diseases in contrast to tropical diseases, in Europe and the developed world that is increasing and it's a lethal disease for which there is really no cure that

is guaranteed and so it is a major concern. If it were a disease that only occurred in the poorest countries of the world, as many of the tropical diseases, I think you would see very little concern which is the general case.

LITTLEJOHNS: But Prof. Bloom, surely it does occur very considerably in the poorer countries and there's a theory in fact that it may have begun in Africa, is there not?

BLOOM: Yes. I think no one really knows where this virus arose in terms of geography or even its genetic origins but I would point out that if you make the list of tropical diseases that really affect the lives of millions and millions of people in terms of numbers, AIDS is not the highest priority in numbers in Africa, nor in the West, but if one looks at malaria or schistosomiasis we're talking about a half a billion people who suffer from those diseases. There is very little activity in the developed countries in support of research or interventions because they don't occur to a great extent there.

LITTLEJOHNS: But like AIDS, are these diseases inevitably fatal?

BLOOM: These diseases are not inevitably fatal and I think that attenuates the interest but they're chronic and I think one of the dilemnas in setting medical priorities that every country and every WHO board faces is how do you rank diseases in terms of severity or priority? What does it mean to lose a child from cerebral malaria at the age of four relative to having someone who will not die of leprosy but will lose all the fingers on their hands and their nose and their ears and suffer a life of shame and humiliation and ostracism? There's a price for that and it's one of the great problems of comparing the acute death with the chronic debilitating diseases. Many of

the diseases we're talking about -- malaria -- are chronic debilitating diseases. They're infected over and over and over and over again. Children are unable to learn at school, workers in the fields are unable to be productive but they don't keel over dead in the numbers that you're talking about.

ROBINSON: Prof. Bloom, based on what you now know in the World Health Organization and what you know of what's going on in the private and public pharmaceutical industries what is your best estimate at the present time for malaria, the most widespread of the tropical diseases?

BLOOM: Malaria is the most widespread, in many respects the most devastating because it is so recurrent and often so debilitating. There has been enormous hope because of recombinant DNA and modern genetics that we could make very, very good rapid vaccines that would be different than anything anyone had done before. You can't grow the parasite in great numbers, you can't isolate the proteins but we can now with recombinant DNA technology. Once again the parasites have outwitted us. They've been here for many, many millions of years and they have learned to diversify so that each isolate, each region has its own set of parasites that if one could immunize against that it may not be protective against someone somewhere else so that I believe the challenge for malaria is the greatest challenge. I think there are short-term applications for that and I'd like to be somewhat optimistic. I think pesticides have in a sense reached a limit both in terms of the tolerance of the planet for killing more of the biosphere than we have already done, and they haven't cured the disease, so we need new approaches. Short-term, what does that mean? The Chinese have come up with an herbal drug called qing hao su. A chemical has been isolated from that called artemesenin. It's one of the success stories through simple, direct scientific

approaches. This drug is the most effective drug against lethal, acute cerebral malaria, that which kills most of the kids. It's a wonderful and miracle drug, it's about to go into more wide scale trials. That's short-term. Long-term, I think we have to contemplate even the possibility of genetic engineering of mosquitoes so that we don't change the biosphere, we don't change the ecology of the planet by killing off the species. We simply make them inhospitable for growing malaria parasites and transmitting them. Everybody would be happy. We would be happy and the mosquitoes would be happy.

LITTLEJOHNS: And the fish I presume?

BLOOM: And hopefully the fish.

ROBINSON: Does the experience of China mean that developing countries have to rely on themselves more and are they more than capable of doing that? Cuba, India, Mexico for instance come to mind.

BLOOM: I could not believe more strongly in that. I would like to have believed that the noblesse oblige perhaps of the developed countries, the sense of responsibility would mean more companies would offer their tools, their drugs, free of charge and help the global effort. We are one community I would like to believe. I think that's unlikely to be the case. I think then one has to look at the fact that not all developing countries as you very well know are the same. There are expectations of some of the most advanced developing countries as in Brazil, China, India where there is every reason to believe they could set up superbly successful biotechnology and pharmaceutical industries and in many respects are already doing so and I would hope that they would take care of both their national as well as regional health problems or make a

contribution. There are other countries where the water supply is the main problem; building a pharmaceutical company in those places is not the answer. The simplest development of appropriate education, public health and purification of the water supply could have an enormous effect in preventing deaths from diarrheal diseases.

MORELLO: Prof. Bloom, the question of implementation as we know is one of the important factors here. Using a figure that's usually used in any kind of development though, it takes something like say the cost of a stealth bomber, something over $530 million whereas the entire annual budget of WHO is $350 million. Do you see any move toward the so-called peace bonus that will help your work or is too early?

BLOOM: I wish I did. I would hope, since I haven't seen much in the way of a peace bonus go into health, to make two points. I don't think the peace bonus will go into the realm of health spontaneously and one of the things that I find most puzzling, both within my own country and elsewhere, is the little demand that is made for greater attention to problems of health. Until the people in the developing countries ask their leadership for a greater investment in health rather than the defence budget for those countries and until my own country does the same there is not going to be a peace bonus in health. There has to be a demand and I don't see it yet on the horizon. The tools and the prospects for new tools are in the laboratories. What we need is the support to do it and to get it out there and that's going to require more than just wishful thinking.

MORELLO: Well then where's the money going to come from? You've already said the private sector is not particularly interested in it, the governments that are capable of doing these things are not interested in it, where is the money going to come from for this?

BLOOM: I think that the money could come already from the existing budgets of what we do. I'm not an economist and it would silly for me to speculate but I would point out there is a vast amount of debt that is in fact in hard cash being transferred from the developing countries in fact to the developed countries. I would love to believe that if it's going to be written off some of it could at least be written off so that it is targeted for health within those countries and in the process of undoing debt we would all agree to take a little bit less back from our banks and be sure that that money was spent in improving the lives of the people and rather than squander it on other kinds of material acquisitions in developing countries.

STEELE: Prof. Bloom, who's doing most of the biomedical research into tropical diseases? Brazil and India have been mentioned. Is most of the biomedical research in fact located in developing countries?

BLOOM: Most of the biomedical research at the moment is in fact in the industrialized countries because that is the centre and where the hightech approaches to biotechnology and the pharmaceutical industry have resided. There are emerging industries in the more developed as I mentioned developing countries. One of the exciting possibilities is that they will be hooked up regionally and hopefully in a world where there is co-operation in rather than competition in health, hooked up as well with the really astoundingly good and effective pharmaceutical industries in the West. My sense of that is that the United States moves in that direction are very tentative but that the moves in the European community, looking towards 1992 and the EEC, may be less tentative and I perhaps have a jaundiced view but I see health for any country in the world that's developed as one of the best tools in diplomacy. This brings something positive to everyone. The gifts of jet

fighter planes and bombs are not widely appreciated by the people who are hungry and sick.

STEELE: Logistically, how does one develop and test drugs in a country where the diseases don't exist?

BLOOM: It's complicated. In the United States for example there are requirements of the Federal Drug Administration that you cannot directly test anything made in the United States or sell it unless it has met Federal Drug Administration standards here so that I think that's probably a good thing and it should assure that even if we don't have cholera here, you can't test a cholera vaccine here cause there's nothing to test it on, the criteria that would be used to test that vaccine let's say in Bangladesh would be exactly the same if it were made in the United States, as if you were testing it in New York City, and so I would hope that the sense is in order to do those kinds of developments we can't do it here but we can, with co-operation through WHO.

STEELE: So unless you transfer technologies you're riding a very limited option?

BLOOM: That's right and one of WHO's great functions is to hook up a drug in New Jersey for river blindness and populations in Nigeria and Benin and Burkina Faso where they can be tested. Within nine months 70,000 people were tested with that drug and it was found to be effective.

ROBINSON: Do you think the example that you mentioned earlier of this company which makes the drug for river blindness available practically free, can that replicated by other companies? Are they likely to do that and still meet the needs of their shareholders?

BLOOM: I think it's unlikely. I think there is an ambivalence about that drug. Every drug company wanted to be on the front page of The New York Times, everyone wanted to have a picture of river blindness being cured on the front of The New York Times magazine section and yet none of them want to give their drugs away for free and I think the effort that now has to be made is we need their technology, we need it for very specific chemical and medical purposes. We don't need to hang the whole responsibility for the development testing liability and delivery of drugs on any one company and my sense is there will be a kind of interaction that has never been achieved before between health officials in developing countries who have populations to test drugs, WHO who knows a drug and what it needs to be chemically modified so it's more long lasting and less toxic, and the drug company that has the skills to do that but not the willingness to take the full responsibility. That's a complicated bit of interactions. It has never happened before and I think it's just beginning.

LITTLEJOHNS: Prof. Bloom, that's all the time we have. Thank you for joining us on this edition of **WORLD CHRONICLE.**

Our guest has been Prof. Barry Bloom, Chairman of the World Health Organization's Advisory Committee on Tropical Diseases. He was interviewed here at United Nations Headquarters in New York by: Claude Robinson of Inter Press Service; Ted Morello of the Christian Science Monitor; and Ian Steele of the Press Foundation of Asia.

I'm Michael Littlejohns. Thank you for joining us. We invite you to be with us for the next edition of **WORLD CHRONICLE.**

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